UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,460	08/05/2003	Hiroshi Kyusojin	112857-419	6730

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
	10/634,460	KYUSOJIN ET AL.
Office Action Summary	Examiner	Art Unit	
	Brian Q. Le	2624	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2007*.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

Response to Amendment and Arguments

1.   Applicant's amendment filed June 15, 2007, has been entered and made of record.

2.   The rejection of claims 12-13 under 35 U.S.C. 101 is withdrawn.

3.   The objection of claim 10 because of the confusing language is withdrawn.

4.   Applicant's arguments with regard to claims 1-19 have been fully considered, but are not considered persuasive because of the following reasons:

Regarding claim 1, the Applicant argues (page 8 of the Remarks) the combination of Sobage and Aliage does not disclose encoding the image data such that the image data of an image in a second direction has a lower resolution than image data in a first direction because the Applicant merely rely on the Aliaga's disclosure "view reconstruction may be accelerated during the execution of the walkthrough by using fewer mappings than columns in the reconstructed image.". The Examiner respectfully disagrees. As clearly articulated by the Examiner, Aliaga also disclose an omnidirectional images system (abstract) comprises processing images from different directions (different view points) (FIG. 1B, element 402 and page 4, column 1, [0047]) and provide a capability processing images wherein image in one view (second direction) can be lower in resolution of images in different view (first direction) (page 8, column 2, [0101], "In a further exemplary embodiment, **view reconstruction** may be accelerated during the execution of the interactive walkthrough by **using fewer mappings than columns in the reconstructed image**. In this embodiment, **the pixels may be warped using lower-resolution information**") (emphasis added). Thus, this would improve processing because it would be able to compensate the resolution difference in mapping, warping and reconstructing images (page 5, column 2,

[0066]) and therefore, it would have been obvious to one of the ordinary skill in the art to modify

Sogabe according to Aliaga.

Newly added claims 14-19 are further reject in view of Yamada U.S. Patent No.

7,203,236.

The Examiner believes that all the arguments of the Applicant have been properly

addressed and explained. Thus, the rejections of all of the claims are maintained.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   Claims 1-3, 6-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over

the combination of Sogabe et al. U.S. Patent No. 6,762,789 and Aliaga et al. U.S. Pub. No.

2002/0176635.

Regarding claim 1, Sogabe teaches an information providing system, comprising:

an information processing apparatus (omnidirectional video processing) (abstract); and

an information supplying apparatus for supplying image data of omnidirectional images to the

information processing apparatus over a network (omnidirectional video processing provides

omnidirectional images over a network) (abstract; column 7, lines10-17 and column 8, lines 19-

22),

wherein the information supplying apparatus obtains viewpoint information set by the

information processing apparatus (image information of view point) (column 3, lines 1-15);

encodes the image data of the omnidirectional images (compress omnidirectional images before

transfer image data) (column 11, lines 15-23), and transmits the encoded image data of the

omnidirectional images to the information processing apparatus (column 11, lines 29-40), and

wherein the information processing apparatus decodes, out of the received image data of

the omnidirectional images, image data corresponding to the viewpoint information, and outputs

the decoded image data (image recovering means to recover the compressed image) (column10,

lines 15-21 and column 11, lines 20-28).

Sogabe does not explicitly teach an image in a second direction has a lower resolution

than an image data of the first direction corresponding to the viewpoint information. Aliaga

further teaches an information providing system wherein comprises images taking from direction

point of view (since each point of view comprise a different view direction) (FIG. 1B, element

402 and page 4, column 1, [0047]) and capable of combine images of different resolution

together i.e. one image a different view (second direction) can be lower in resolution than the

other image (first direction) (page 7, column 1, [0082-0083] and page 8, column 2, [0101]).

Modifying Sogabe's method of processing information according to Aliaga would be possible to

have image in one direction is lower in resolution to image in a different direction because

images in an omnidirectional apparatus are taken differently such as different directions,

brightness or distance ...etc may generate different resolution of images. This would improve

processing because it would be able to compensate the resolution difference in mapping, warping

and reconstructing images (page 5, column 2, [0066]) and therefore, it would have been obvious

to one of the ordinary skill in the art to modify Sogabe according to Aliaga.

Regarding claim 2, please refer back to claim 1 for further teachings and explanations.

Regarding claim 3, please refer back to claim 1 for further teachings and explanations. In

addition, Sogabe teaches a receiving means for receiving viewpoint information from the at

least one information processing apparatus (Omnidirectional image pickup means) (FIG. 1).

Regarding claim 6, the Examiner takes Official Notice that it is obvious that resolution is

either set by the number of pixels or the number of colors. This is well known for one of the

ordinary skilled in the art the resolution can be determined by either spatial resolution, number

of pixels or color resolution, number of colors.

For claim 7, Sogabe further teaches an information supplying apparatus further

comprising storing means for storing the image data of the omnidirectional images (FIG. 1,

element 26) which is encoded by the encoding means (as discussed in claim 1).

Referring to claim 8, Sogabe also teach an information supplying apparatus further

comprising combining means for combining the image data of the omnidirectional images

which is encoded by the encoding means into one file of image data, wherein the storing means

stores the one file of image data combined by the combining means (image position file to store

omnidirectional images photographed at the same time) (column 7, lines 10-20).

Regarding claim 9, as discussed in claim 1 regarding lower resolution limitation and

other mentioned claims regarding transmitting means and storing means, Sogabe further teaches

a converting means for converting, based on the viewpoint information (FIG. 18, element 6 and

column 13, lines 43-50).

Regarding claims 11-13, please refer back to claims 1 and 3 for further teachings and explanations.

7.   Claims 4-5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sogabe et al. U.S. Patent No. 6,762,789 and Aliaga et al. U.S. Pub. No. 2002/0176635, as applied to claim 3 above, and further in view of Dekel et al. U.S. Patent No. 7,024,046.

Regarding claim 4, as disclosed in claim 1, Sogabe teaches an encoding method. Sogabe does not explicitly teach the encoding mean to encode the image data in a joint photographic experts group 2000 format. Dekel further teaches a method to processing image information data (abstract) wherein data can be encode in a joint photographic experts group 2000 (column 1, lines 35-40). Modifying Sogabe's method of procession data information according to Dekel would be able to utilize joint photographic experts group 2000 to encode image data. This would improve processing because this format would allow progressive transmission of an image so that the quality of the image display at the client site improves during the transmission (column 1, lines 38-42) and therefore, it would have been obvious to one of the ordinary skill in the art to modify Sogabe according to Dekel.

Regarding claim 5, as discussed in claim 1, Sogabe teaches the encoding means encodes the image data (column 11, lines 15-22) of the omnidirectional images (column 11, lines 4-11). Sogabe does not explicitly teach an encoding method wherein encode images in the second direction, an image in a direction farther from the first direction an even lower resolution. Dekel further teaches a method to processing image information data (abstract) wherein an encoding method encodes (abstract, last 6 lines) image in the second direction farther from the first

direction has even lower resolution (as further the direction is away from the original's direction

resolution, the resolution is decreasing) (also, this encoding method has the ability to code a

region of interest/ROI with a different/specific desired resolution and thus one resolution in a

different direction of different block can be lower than other block) (FIG. 26; column 25, lines

18-32; and column 29, lines 5-40). Modifying Sogabe's method of procession data information

according to Dekel would be able to encode image in a second direction farther from the first

direction has an even lower resolution. This would improve processing because this would allow

the system to eliminates the need to store a compressed version of original image (column 2,

lines 63-65) and also avoids the computationally intensive task of compression of the full image

(column 2, lines 65-67) and therefore, it would have been obvious to one of the ordinary skill in

the art to modify Sogabe according to Dekel.

For claim 10, as discussed in claim 5, Sogabe teaches selecting means for selecting,

based on the viewpoint information (FIG. 21, S202) received by the receiving means (FIG. 13,

"IMAGE PICKUP POSITION OBTAINING MEANS") from the information processing

apparatuses and transmitting (as discussed in claim 1). Similarly to claim 5, Sogabe does not

explicit teach a highest resolution of the resolutions of the image data of the images in the second

direction which has a resolution lower than or equal to the resolution. Similarly as discussed in

claim 5, Dekel teaches a method to processing image information data (abstract) wherein an

encoding method encodes (abstract, last 6 lines) image in the second direction farther from the

first direction has even lower resolution (as further the direction is away from the original's

direction resolution, the resolution is decreasing) (also, this encoding method has the ability to

code a region of interest/ROI with a different/specific desired resolution and thus one resolution

in a different direction of different block can be lower than other block) (FIG. 26; column 25, lines 18-32; and column 29, lines 5-40). This would improve processing because this would allow the system to eliminates the need to store a compressed version of original image (column 2, lines 63-65) and also avoids the computationally intensive task of compression of the full image (column 2, lines 65-67) and therefore, it would have been obvious to one of the ordinary skill in the art to modify Sogabe according to Dekel.

8.   Claims 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sogabe et al. U.S. Patent No. 6,762,789 and Aliaga et al. U.S. Pub. No. 2002/0176635, as applied to claims 1-3, and 11-13 above, and further in view of Yamada U.S. Patent No. 7,203,236.

Regarding claims 14-19, Sogabe does not explicitly teach the lower resolution is one half of the resolution of the image data of an image in a first direction. Yamada further teaches an image processing method wherein lower resolution is one half of the resolution of the image data (FIG. 1, Unit 25) of an image in a first direction (in a vertical direction) (column 7, lines 1-15 and 20-25). Modifying Sogabe's method of processing images according to Yamada would be able to lower resolution of image in one half of the resolution of image data. This would improve processing because images can be process at different resolution as to save storage space, graphic performance while maintaining graphic quality (column 1, lines 57-67 and column 2, lines 1-16) and therefore, it would have been obvious to one of the ordinary skill in the art to modify Sogabe according to Aliaga.

Conclusion

9.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Contact Information

10.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian Le
August 8, 2007